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N E W S L E T T E R

PLANT QUARANTINE AND CONTROL ADMINISTRATION

UNITED STATES DEPARTMENT OF AGRICULTURE

Number 1 (NOT FOR PUBLICATION) January, 1931.

FOREWORD

There is inaugurated with this number The News Letter of the Plant Quarantine and Control Administration. It is intended to bring into closer contact all the members of the Administration. If this is accomplished, it will give all of us a broader vision. We shall be better able to see the other fellow's problem and better understand his viewpoint. We shall be more tolerant of the attitude and position of the person whose product or property is being placed under regulation. We shall then be better able to represent the Department to the citizens of the country with whom we come in contact. The News Letter is intended to be helpful. It will be, if everyone helps to make it so. Suggestions for improvement and appropriate notes for publication will always be welcome.

LEE A. STRONG.

ADMINISTRATIVE

Prior to the convening of Congress, hearings were held by the subcommittee of the House Committee on Appropriations to consider the estimates of funds required for work done by the Department for the fiscal year 1932. Those dealing with the work of the Administration were held on December 1. The bill making appropriations for the Department for the fiscal year 1932 was reported to the House at noon, December 16. The amount estimated for under average salary adjustments was omitted throughout the bill. Omitting the estimate for under average salaries, the amounts approved by the Budget for the various items of the Administration were included in the bill as reported to the House with the exception of the item "Control and Prevention of Spread of the European Corn Borer." For this item the committee made a reduction in the Budget estimate of $210,000, and in its report included the following statement: "There is a further reduction of $210,000, made by the committee, in view of the committee's conviction that the quarantine and road patrol measures in the eastern boundary of the regulated area can safely be dispensed with." The bill passed the House on the afternoon of December 19. Prior to passage the corn borer item was discussed on the floor, and the limitations included in the committee's report as to the use of funds was withdrawn. The bill is now before the Senate subcommittee and it is anticipated that this committee will hold its hearings early in January.

It is anticipated that the First Deficiency bill for the fiscal year 1931 will be reported to the House early in January. It is expected that this bill will include an item for compensation to farmers for actual and necessary losses sustained because of the enforced nonproduction of cotton in Arizona for the crop season 1930. An estimate of funds has been submitted and this item has been defended before the committee on appropriations.

On December 15, 1930, Mr. L. H. Worthley, who is the administrator in the field in the enforcement of the quarantine on account of the European corn borer, took over the field work of administering the Japanese beetle quarantine, of which Mr. C. H. Hadley has been in charge for two and a half years. Mr. Hadley has been transferred to the Bureau of Entomology, to take field charge of the research work on Japanese beetle and Asiatic beetle, with headquarters at Moorestown, N. J. The combining under one head of the field administration of the quarantines on account of the European corn borer and the Japanese beetle, should effect economies and accomplish greater uniformity in the work incident to the enforcement of plant quarantines in the eastern part of the United States. This consolidation will permit uniform supervision of road inspection and scouting work. It will also do away--at least in certain market centers--with duplication of inspection of field and farm products regulated on account of both of these pests and will thus serve to speed up these operations.

TECHNOLOGICAL

This organization is concerned with the commercial application of the findings of the research bureaus of the Department to the disinfection and sterilization of plants and plant products moving under the various foreign

and domestic quarantines and improving and standardizing methods now followed by the Administration in the sterilization and disinfection of these products. The work is necessarily cooperative with the other divisions of this Administration and with the research bureaus.

Work in testing the commercial application of the heat method of sterilization as developed for the sterilization of citrus fruits and avocados for the Mediterranean fruit fly is being carried on in Florida by Messrs. A. G. Galloway and J. M. Luckie, in an endeavor to determine the products to which this method could be applied if it were necessary at any time to sterilize them.

At the present time the method is being tested with chestnuts and filberts as a possible substitute for the hot water treatment of imported nuts which when found infested at the port of entry are now immersed in hot water at 122°F., for a period of 45 minutes.

To determine the reaction of grapefruit and oranges grown in the lower Rio Grande Valley of Texas to this method of heat sterilization, tests are being made at Brownsville, Tex., in a room installed in one of the citrus packing houses. Mr. M. B. Parker, who is carrying on this work, reports excellent results with oranges and with some of the varieties of grapefruit.

In order to provide for the movement of cottonseed from the regulated areas to regions not infested with pink bollworm, work was started this fall at El Paso, Tex., in cooperation with the Bureau of Entomology and with the pink bollworm project in the fumigation of cottonseed with hydrocyanic acid. The work is proceeding as rapidly as could be expected, and sufficient data may be available soon to warrant recommendation as to treatment necessary to insure the extermination of all live pink bollworms from infested seed. Mr. A. C. Johnson is carrying on this work.

FOREIGN PLANT QUARANTINES

SOME RECENT INTERCEPTIONS ON IMPORTED PLANTS AND PLANT PRODUCTS

Entomological

The Mediterranean fruit fly (*Ceratitis capitata*) was intercepted at Boston in a decayed lemon in the mail from Italy. This is the first interception of this fruit fly in lemon by inspectors of the Plant Quarantine and Control Administration. This fruit fly was also found at Philadelphia in an orange in ships' stores from Spain.

The West Indian fruit fly (*Anastrepha fraterculus*) was taken at New York in guava in baggage from Porto Rico; at New York in mango in baggage from the Bahamas, Jamaica (4 times), and Porto Rico; at New Orleans in mango in crews' quarters from Honduras (twice), and at Philadelphia from Jamaica; and at New York in soursop in baggage from Jamaica.

The Mexican fruit fly (*Anastrepha ludens*) has been intercepted from Mexico in baggage as follows: In mango at Brownsville, Eagle Pass, and El

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Paso (4 times); in orange at Hidalgo, Laredo, and Roma; and in pear at Hidalgo and Laredo. It was also taken at Laredo in quince in the mail from Mexico. The Mexican fruit fly was found near Monterrey, Nuevo Leon, Mexico, in pistache nuts (Pistacia vera). This represents our first record of this fruit fly infesting pistache nuts.

Psylliodes chrysocephala (Chrysomelidae) was intercepted twice at Philadelphia in turnips in ships' stores from England. This beetle mines inside the stem and root of turnip in Europe, where it does much damage.

Thrips tabaci pullus, a variety of the onion thrips not known to occur in this country, was found at Philadelphia on flowers of Ornithogalum thyrsoides in the mail from South Africa. While there are interception records of this thrips on other hosts from Europe, Algeria, and Egypt, this is the first interception of this insect on any host from South Africa.

Brachycerus albidentatus (Brachyceridae) was found at New York in cipollino (Muscari comosum) in cargo from Morocco. This beetle, not recorded from the United States, breeds in the roots of garlic and shallot in Europe.

The West Indian sweetpotato weevil (Euscepes batatae) arrived at Philadelphia in yams from Jamaica. The yams were taken from the crew. This weevil, which is found in the West Indies and Hawaii, also attacks the sweetpotato by boring in the tuber.

The larvae of Baris laticollis (Curculionidae) were taken at New York in turnips in ships' stores from France. This weevil, which is not recorded from this country, has also been found in turnips from Portugal.

The pink bollworm (Pectinophora gossypiella) was intercepted at Presidio in cottonseed in baggage from Mexico (4 times); at Washington, D. C., in Gossypium sp. (seed) in the mail from China, and from Manchuria; and at El Paso (twice) and at Presidio in seed cotton in baggage from Mexico.

Laspeyresia splendana reaumurana (Olethreutidae) was taken at Philadelphia in chestnuts in the mail from Italy, and at New York in chestnuts in cargo from Portugal. This insect infests the fruits of chestnut and oak in southern Europe and has not been reported from the United States.

Pathological

Forty-four interceptions of Elsinoe canavaliae have been made at New York on Lima beans arriving from Cuba (in cargo) since the shipping season for this commodity began on November 1. Other interceptions on these beans include six of anthracnose (Colletotrichum lindemuthianum), forty-six of bacterial blight (Bacterium phaseoli), and three of pod-blight (Phoma subcircinata, the conidial stage of Diaporthe phaseolorum).

The boxwood rust, Puccinia buxi, was found at Philadelphia on boxwood

cuttings from Ireland (in mail). This rust has been intercepted several times in the past and it is not reported as occurring in the United States.

Puccinia ornithogali-thyrsoides has been taken eight times at New York, three times at Philadelphia, and once at Chicago on shipments of Ornithogalum thyrsoides flowers from South Africa (in mail). In several instances both the stems and flowers were found to be severely infected. Heterosporium ornithogali has been found rather commonly on this same material, having been determined five times on interceptions from New York and twice on interceptions from Philadelphia. One of the New York interceptions had the smut, Ustilago ornithogali in addition to the rust. So far as it is known the rust and smut do not occur in North America, but the Heterosporium has been reported from Washington on Ornithogalum sp., and has been collected in Pennsylvania on O. umbellatum.

The stem canker of roses, Coniothyrium fuckelii, was found at Philadelphia in recent shipments of manetti stock (in cargo) from England (twice), and from Ireland (once).

Several interesting nematode interceptions have been made recently. Tylenchus dipsaci was found at Charleston in potatoes (in ships' stores) from Holland. An unpublished nema was found at Philadelphia in a potato from Sweden (In ships' stores). This interception constitutes an interesting record in that the nema was previously known in this country only and in an altogether different host. Tylenchus pratensis was found twice at New York in lily-of-the-valley pips from Germany (in cargo). This nema is considered a destructive plant parasite and has been reported in several hosts from the United States. Tylenchus tritici was found at Washington, D. C., in Triticum vulgare from Yugoslavia (in baggage).

Sphaeropsis malorum was found on Cotoneaster Franchetti cinerascens imported from England under special permit and grown in New Jersey. This is the first report of this fungus on Cotoneaster although it is well known on fruit trees and several other hosts. The specimen was collected during a field inspection of special permit material.

DOMESTIC PLANT QUARANTINES

TRANSIT INSPECTION

The examination of express, parcel post, and freight for the purpose of checking on compliance with domestic plant quarantines is now being carried out at more than half the important distribution points in the United States. At the more important locations, continuous inspection is being made throughout the winter, while at others the work is confined to the spring and fall nursery stock shipping seasons.

In the Pacific Northwest, nursery shipments through Seattle and Portland continue throughout the winter and inspection is therefore maintained in those cities continuously. The work at Spokane, Wash., and Ogden, Utah, was discontinued in November and the appointments of the inspectors assigned to those points were terminated until the spring shipping season opens in February. Transit inspection for this entire northwestern area is under the direction of

Mr. C. R. Stillinger, whose office is in the Federal Building at Spokane.

In the Central States, transit inspection was temporarily carried out during the fall at Omaha, Council Bluffs, and Cincinnati, but was terminated at those points at different times during the latter part of November and December depending on the number of shipments of quarantined articles in transit. At St. Paul and Minneapolis, the work was continued until the midwinter holidays owing to the extensive movement of Christmas trees and greenery through these cities. A number of violations of the white pine blister rust quarantine were intercepted in connection with such Christmas movement.

Mr. Geo. T. Gaylord, of the Minnesota Forest Service, who is making observations on the movement of Christmas trees for that service, recently reported a truck carrying uncertified white pine from Wisconsin to Minnesota. The message was relayed by State Forester Grover Conzet to the Administration inspector at St. Paul, Mr. Geo. W. Nelson, and resulted in the interception and confiscation of the white pine. Indirectly, it led to the interception of two other violations of Quarantine No. 63. Mr. Nelson also reports the hearty cooperation of the hundred or more officials of various transportation agencies in Minneapolis and St. Paul.

Failure of a nurseryman to defoliate gooseberry plants resulted in the turning back of a freight shipment of 5000 young bushes consigned at Bangor, Mich., to another nurseryman at Shenandoah, Iowa. The shipment was intercepted at Omaha on November 1, by Mr. R. E. Wheeler, transit inspector at that station. Gooseberry foliage is especially likely to carry blister rust infection in the summer and fall.

Inspection is being continued throughout the winter at Chicago, St. Paul, Minneapolis, St. Louis, and Kansas City. The headquarters for the Central States are in the Manhattan Building at Chicago. Two inspectors from the European corn borer force are working in collaboration with the transit inspection employees and devoting their primary attention to the enforcement of corn borer regulations at the Chicago Stock Yards and at elevators and freight stations. The primary duty of the inspector at the Stock Yards is the examination of railway cars and trucks arriving from the corn borer regulated areas to determine whether stalks and cobs which might carry the corn borer have been used for bedding of live stock. Several violations of this nature have been discovered.

Mr. J. M. Corliss, in charge of transit inspection in the Middle West, in a talk to the members of the Botany Club of the University of Chicago on December 1, discussed transit inspection activities.

Assistant Secretary of Agriculture R. W. Dunlap visited the transit inspection office at Chicago on November 14, and made an inspection tour of the work in mail and express terminals. Mr. Dunlap witnessed the correlated activities of the postal employees and the transit inspectors. He was especially interested in the manner in which compliance with quarantines is carefully checked by inspectors, and inspections so timed as to avoid delaying the mail.

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Transit inspection and the enforcement of foreign plant quarantines are being combined at St. Louis, and Mr. Oliver J. Yoder has recently been appointed as Junior Plant Quarantine Inspector to carry out this work. His duties involve the checking of all incoming and outgoing foreign and domestic express, parcel post, and freight to determine compliance with the foreign and domestic quarantines. He is especially busy on citrus shipments from the West Indies during the early fall and on interstate nursery stock shipments in the spring.

Mr. R. A. Sheals, field supervisor of transit inspection, is making a survey of the freight junction points in the Northeastern States to determine those through which nursery stock passes in largest amounts. This will furnish information on which we can base future plans for checking freight. Freight movement is very difficult to cover on account of diverse and complicated routings and the number of transfer points around each of the large cities.

Inspectors enforcing the European corn borer and Japanese beetle quarantine regulations are working in collaboration with transit inspectors at New York City. The combined schedules provide for inspection at 10 express terminals, 2 freight terminals, and 3 main post offices throughout such periods of the day and night as the railway and mail schedules necessitate. The cooperation of transportation officials and employees in holding out parcels for inspection at the terminals now makes possible the inspection of nearly all plant material in transit through New York City and Jersey City. Mr. C. B. Beamer is in charge of the station.

The transit inspection work which is being carried on systematically at Boston for the first time this season has resulted in the interception of a considerable number of shipments consigned from the two-generation area in violation of the European corn borer quarantine. The Boston inspectors intercepted over 90 uncertified chrysanthemum shipments up to December 15, in addition to other restricted articles. Forty-three gipsy-moth quarantine violations have been reported from early in September to the time of the preparation of this note. Mr. E. J. McNerney is in charge of the station.

Transit inspection in the Southeastern States is carried out under the direction of Mr. G. W. R. Davidson, with headquarters at Atlanta, Ga. Mr. Davidson is also in charge of the enforcement of the phony peach disease quarantine regulations.

With the revocation of the Mediterranean fruit fly quarantine, transit inspection activities at Nashville, Tenn., were discontinued on November 13.

A detailed study of nursery stock shipments passing through Memphis, Tenn., was made by the Administration inspector at that place, Mr. H. J. Conkle, over a period of 19 days closing with November 30. The study showed a total of 900 shipments of nursery stock seen in transit, consigned from 27 States to points in 18 different States. The shipments were analyzed as follows:

Express	703
Mail	172
Freight	25

Number of shipments in violation of Federal quarantines, 2.

Number of infringements of State regulations, 27. Of these 27 shipments, 15 did not bear valid certificates, and 12 were lacking in the permit required by the State of destination. These infringements were reported to the officials of the States to which the shipments were consigned.

WHITE-PINE BLISTER RUST

Dr. S. B. Fracker made a visit to a nursery at Newark, N. Y., on October 30, to review with Mr. George Paige, of the New York Conservation Department, the latter's Ribes eradication work in the environs of the nursery during the past summer. Five hundred pounds of white-pine seeds were sown in this nursery in the spring of 1929 for the production of pines under the sanitation conditions prescribed in Regulation 2(d) of the blister rust quarantine, and several hundred white-pine seedlings secured in recent years from other permittees are also grown on the premises.

A serious new blister rust outbreak on white pine has been discovered in Douglas County, Wis., according to the Office of Blister Rust Control, Bureau of Plant Industry. Douglas County is in the extreme northwestern corner of the State and contains considerable white pine. It is reported that although the trees were heavily infected, the infection center is small and the spread of the rust may be retarded somewhat by removing the heavily infected trees along with the Ribes.

PHONY PEACH DISEASE

A public hearing to consider the advisability of extending the quarantine on account of the phony peach disease to the States of Texas, Arkansas, Louisiana, Tennessee, North Carolina, South Carolina, and Mississippi, was held at Washington on November 14. As an alternative to such extension, the question of the possible discontinuance of the quarantine was discussed. No decision as to quarantine action has yet been reached as a result of this hearing, and it is anticipated that no change will be made in the present regulations until after another conference on the subject has been held.

Messrs. M. E. Connolly and H. J. Conkle, who have been engaged at Cincinnati, Ohio, and at Memphia, Tenn., respectively, in aiding in the enforcement of the Mediterranean fruit fly quarantine regulations, were assigned to phony peach disease quarantine activities on December 16. Mr. Connolly will be headquartered at Concord, Ga., and will supervise the issuance of permits to peach-growing nurseries in that vicinity. Mr. Conkle is continuing at his headquarters at Memphis for the immediate present, giving primary attention to the movement of peach nursery stock from the regulated area.

DATE SCALE

During the month of November careful inspection in the infested area of the Coachella Valley was continued. Out of a total of 19,443 date palms

inspected, only 24 were found infested, and in no case was the infestation severe enough to endanger the adjoining palms. Eight of the infested palms were in commercial gardens, and 16 were in seedling plantings of no commercial value. The 16 seedling palms were dug out and destroyed. Seven of the standard variety palms were defoliated and torched and the remaining 1 severely pruned.

The Johnson property, on which the 16 infested seedlings were found, was one of the few seedling jungles in the infested area remaining after the clean-up work of 1929. Thirteen rows of date seed had been planted on this place about 15 years ago, when the planting of seed was advocated, with the idea of spacing the palms later by removal of the males and thinning. Before this was done the date idea was abandoned and the growing palms were so thick in the rows that the foliage intermingled and in many cases the trunks touched each other. To complicate matters further, as far as inspection was concerned, mesquite and other desert brush grew up between rows so that it was impossible to reach some of the palms. Because of these conditions the inspectors were unable to locate the infestation before it had developed to a point where the scale had spread generally throughout the planting.

When the infestation was first found in May, 1930, 16 infested palms were located. The absentee landlord was under the impression that when he obtained the property he had a date garden and did not want the entire planting destroyed. We obtained permission, however, to thin the planting, spacing and pruning the remaining palms as is the custom in the commercial gardens. This removed 1,454 palms, 10 recorded as infested, leaving 296. The remaining 6 infested palms were defoliated and torched. With the planting in its present condition, careful inspection will locate the infested palms before there is any spread and eventually clean up the infestation.

In the Imperial Valley 20 infested palms were found during the month, all on one preperty, a new infestation. This planting consisted of 29 seedling palms about 16 feet high. One leaf on one of the palms was very heavily infested. The infestations on the other 19 palms listed were light. This condition seems to be typical of the spread of the scale. The young scale is evidently carried from a heavy infestation to other plantings in the vicinity by wind, birds, or other means, but a very small percentage of the transported scale lives. When it does survive on a palm, the scale breeds up in the immediate locality where it survives, and for a time there is little spread on the palm, and less from palm to palm. The spread is quite rapid, however, after one leaf becomes heavily infested.

The owner of this property gave us permission to destroy 14 of the infested palms and 7 which did not show scale, leaving 6 infested palms and 2 which did not show scale, which were defoliated and torched.

Inspection in the infested areas in Arizona was continued during the month and some scouting done outside the regular inspection districts. No scale was found during the month.

EUROPEAN CORN BORER

An exhibit was placed at the International Livestock Show in Chicago, which was handled cooperatively with the Bureau of Public Roads and the Plant Quarantine and Control Administration. The exhibit attracted more attention this year than ever before, and a great deal of interest was shown in both the mechanical devices and the general exhibit.

Very good progress is being made on the new building which will provide additional quarters at the Norwalk, Conn., Station, and it will undoubtedly be completed and ready for occupancy by January 1.

At the Berkley, Mass., Demonstration Farm all fall work has been practically completed and all fields are thoroughly cleaned and plowed.

Work is practically completed on the Demonstration Farm at Toledo, Ohio, and preparations are being made for the moving of the Toledo headquarters to some point in southeastern Ohio.

Clean-up work in Massachusetts and Rhode Island under compulsory clean-up laws, which is supposed to be completed by property owners on December 1, has progressed very well, and in a tour of inspection of some of the most heavily infested counties in southern Massachusetts and Rhode Island, very good results were found to have been obtained, apparently better than in former years. There has been very little rain during the fall season, consequently the property owners have had very good opportunity to comply with the regulations, which call for deep fall plowing.

GIPSY MOTH AND BROWN-TAIL MOTH

Late in the summer a report was received from Lacon, Ill., that a male gipsy moth had been collected near a light in that town. An attempt was made to secure the pinned specimen for examination, but although it was forwarded, the package was lost in transit. The State Inspector of Illinois, Mr. P. A. Glenn, was notified and requested to make an investigation. This was done, but no evidence could be found that the gipsy moth occurred in that locality. Early in December, Mr. I. L. Bailey, one of the Assistants of this Division, visited Lacon with Mr. Glenn and one of his inspectors, and made an examination of the location where the moth was captured and the surrounding territory. No indication of the presence of the gipsy moth could be found, and it seems probable that the insect reported had been wrongly identified. While at Lacon, Mr. Bailey furnished the Illinois inspectors with information relative to the methods of scouting for gipsy moth infestation, and demonstrated how this work was done. The locality will be kept under observation for the next few years by the State Plant Inspection Office.

The inspection of Christmas trees and Christmas greens shipped from areas in the New England States that have been quarantined on account of the gipsy moth has been in operation during November and December. The volume of

shipping has been slightly less than during previous years, but it is estimated that approximately 900 carloads will have been inspected and forwarded by rail prior to the Christmas holidays. These shipments are widely distributed, particularly in territory east of the Mississippi River, although a considerable number of carloads go to more distant points. A tree by tree inspection of this material is required, and upward of 100 men are used on this activity in November and December. They are transferred temporarily from the Scouting and Extermination project.

Twenty-two thousand feet of one-inch high pressure spray hose was delivered during the month of December, and couplings are being attached prior to final acceptance test. This hose will supplement that already in stock for use during the spraying season in June and early July. It is of special construction capable of withstanding 1,000 pounds working pressure, as it is used on spray lines that are frequently extended a mile or more in length in woodland areas where infestations must be sprayed.

Approximately 25 of the most experienced and expert employees of the Scouting and Extermination project have been making an intensive examination of the tree growth in Dukes Park, Somerville, N. J., where the gipsy moth was discovered in 1920. Much of the growth examined consists of Koster blue spruce trees, many of which are of large size. On account of their dense foliage these trees are very difficult to examine. No infestation has been found this year in the area examined in Dukes Park up to the time of this report.

JAPANESE BEETLE

Newly promulgated Japanese beetle quarantine regulations effective November 10, 1930, involved only minor additions to the generally infested areas. The lightly infested areas, however, were increased to include the entire State of Rhode Island, and small sections in Massachusetts, New York, Pennsylvania, Delaware, Maryland, and Virginia. An isolated generally infested area was created to include the District of Columbia and immediately adjacent territory in Virginia. Heretofore all shipments of restricted articles have required certification for movement from the generally infested area to Washington, D.C., which was previously included within the lightly infested area. Under the new regulations, shipments of uncertified nursery and ornamental stock, sand, soil, earth, peat, compost, and manure may be transported by a common carrier on a through bill of lading between generally infested areas separated by lightly infested territory. This will permit this type of movement of uncertified articles to the District of Columbia. Provisions are also made in the regulations for the movement between generally infested areas without certification of the articles mentioned when transported in sealed road vehicles, the seals to be affixed by an inspector in one generally infested area and examined by an inspector in the separate generally infested area after the transportation through the lightly infested area has been accomplished. Similar privileges are not extended to the movement of farm products, since the unrestricted movement of the latter is permitted from the District of Columbia and the generally infested area of Virginia. Another requirement introduced with the recent revision is the

necessity for the certification of all nursery stock intended to be moved within the lightly infested area from an establishment designated as Class III under the regulations or from known infested premises. This will serve to protect uninfested territory in the lightly infested area from the spread of infestation from within, and supplements the requirement that all restricted articles moving from the generally infested area to the lightly infested area or unregulated zones be certified.

In order to protect trucks and other motor equipment while not in use, it has been necessary to secure an additional 12,000 square feet of ground space. This has been rented immediately adjacent to the Camden headquarters office. The space has been fenced, and filled with cinders obtained from the Frankford, Penna., Arsenal. Sheds are now being erected in the form of a quadrangle.

The spread of the beetle to more northerly and southerly latitudes has required the collection of additional climatical data upon which to predict emergence dates and also to base chemical treatments. Accordingly, soil thermographs have been placed at Taunton, Mass., and Norfolk, Va., to record the soil temperatures at six-inch depths. Cooperative arrangements have been made with Mr. R. H. Allen, of the Massachusetts State Department of Agriculture, and Mr. T. C. Johnson, Director of the Virginia Truck Experiment Station, for the care of the instruments furnished by this project.

The extension of the lightly infested area to include Rhode Island and adjacent territory in Massachusetts has led to the creation of a new suboffice of the project. Mr. T. C. F. Cronin, formerly connected with the treating division of the project, has been placed in charge of the field inspection work in these two States. Through the courtesy of the Rhode Island State Department of Agriculture, temporary quarters have been secured in the State House at Providence.

MEDITERRANEAN FRUIT FLY

Lifting of the Federal quarantine on Florida products, announced on the 11th and effective with the 15th, was by far the most important event of November in the Mediterranean fruit fly work.

Removal of all the restrictions on interstate shipments provided for in the regulations for enforcement of the quarantine necessarily was followed by a complete reorganization of the project and a corresponding reduction in personnel.

While modification after modification of the regulations had been made, and the last of the major restrictions withdrawn on October 15, when the requirement of sterilization on shipments into the south and west was canceled, and the lifting of the quarantine came as a surprise to most growers and shippers.

Decision to take the step was reached only after a personal survey of the situation by Mr. Strong. Accompanied by Doctor Marlatt, the Chief of Administration spent several days in Florida during the early part of November. While on this trip, Mr. Strong attended a meeting of the State Plant Board, at which resolutions were adopted requesting the Department to remove the quarantine.

In announcing that Secretary Hyde had signed the order releasing Florida from the quarantine regulations in respect to the Mediterranean fruit fly, it was stated that field inspection would be continued indefinitely, with a reduced force. Any infestations which may be discovered are to be referred to the State Plant Board, which body, it is believed, will immediately institute eradication measures as an alternative to renewal of the Federal regulations.

Thoughtful consideration was given to the working out of plans under which the field inspection was continued after November 15th. The 26 districts into which the regulated area of the State previously had been subdivided for inspection purposes were combined into 12. At the Orlando offices, departments of the work dealing exclusively with packing and shipping matters were discontinued and in others the number of employees was reduced to a minimum.

Records of the project show that the highest number of personnel engaged during the current campaign was 1,161, at which time 664 men were on field inspection. At the peak of the 1929 eradication campaign, the aggregate number of employees was more than 6,000. By November 15, 1930, the force had been lessened to 609--417 of these employees working in field inspection and 52 performing duties at the headquarters in Orlando. As of November 30, 1930, the field inspection force was 240; that of the Orlando office consisted of 40 employees, with 15 men engaged in miscellaneous activities, including garage and warehouse work.

A delegation from Louisiana, headed by Commissioner of Agriculture Wilson and State Entomologist Anderson, and another from Alabama, headed by State Entomologist Livingston, spent some days in Florida during the first half of November. At fruit fly headquarters in Orlando both groups were supplied comprehensive information concerning the manner in which work has been conducted. Later in the month advices were received that these States had withdrawn their quarantines on Florida fruit.

Survey to determine what proportion of growers were observing the regulations requiring picking up and disposal of drops, concluded on November 4, showed that of 40,884 commercial properties, 37,943, or 92.8 per cent, were found in satisfactory condition. A few days later, it is believed, the percentage would have been considerably higher. Only 31 cases of refusal to comply with the requirement were encountered in the entire regulated area.

Second inspection of property of Mrs. L. C. Furey, at Lake Como, under court order, was accomplished on November 4. Legal proceedings have been instituted in no other instance during the present campaign, the number of refusals to permit inspection having been reduced to less than a dozen through the persistent efforts of the field men.

Monthly report of the identification division, headed by Mr. Benjamin, disclosed that during November 53,332 specimens were examined. Of these, 45,327 were submitted from the Mediterranean fruit fly project, 7,962 from the Mexican fruit worm project, and 178 from other sources.

MEXICAN FRUIT WORM

Each bearing grove of citrus trees in the area quarantined on account of the Mexican fruit worm is inspected at least once each 30 days. This inspection is made for a two-fold purpose--to discover any infestation that might exist, and to see that the grove is kept free of drop fruit and excessive growth of weeds. The third round of inspection was completed during the month with negative results. All larvae likely to be mistaken for the Mexican fruit worm are submitted for determination; 727 collections were made during November, with a total of 7,055 individual specimens.

On November 4, one adult Anastrepha ludens was caught in a trap in Matamoros, Mexico, just across the river from Brownsville. About 100 traps, baited with orange extract, are kept in the citrus trees growing in the patios in Matamoros. Inspection of the imported fruit in the public markets in Matamoros resulted in the finding of 48 larvae of the Mexican fruit worm.

The work of spraying the trees in Matamoros, which is carried on in cooperation with the Mexican Government, was continued throughout the month. This work was hampered by the excessive rainfall during November.

The shipment of fruit by rail was sluggish throughout November due to a weak market. Heavy rains in the Valley made it impossible to get in the groves to harvest the fruit during a large part of the month. About 1,400 carloads have been shipped by rail and truck to date, which is approximately 40 per cent of this season's crop. The heavy rains also retarded the ripening of the fruit, some of the Marsh Seedless not being able to pass the State Maturity Test at the end of the month.

Additional sterilization tests were carried out in the experimental sterilization room in Brownsville. The packers are taking considerable interest in this work, which has already resulted in the installing of air conditioning machines in six coloring rooms in the Texas Citrus Fruit Growers Exchange plant at Val Verde. Valley fruit stands up well under sterilization. About 50 per cent of those who have compared the taste of sterilized and unsterilized fruit prefer the sterilized, claiming that it has more of a tree-ripened taste than the unsterilized.

Eight peach and plum trees were found and destroyed during the month of November.

PINK BOLLWORM AND THURBERIA WEEVIL

Organization

The pink bollworm and Thurberia weevil projects are divided into four general heads:

(1) Scouting work.

(2) The Salt River Valley Eradication Project, which includes Maricopa and Pinal Counties, Ariz.

(3) The Western Quarantined Area, which consists of that area of Arizona east of Maricopa and Pinal Counties, southern New Mexico to the eastern boundary of Otero County, and the El Paso Valley of Texas.

(4) The Eastern Quarantined Area, which consists of southeastern New Mexico, and all of western Texas under quarantine except the El Paso Valley.

The present personnel of the organization is 161, of which 100 are permanent and 61 temporary. The permanent force remains rather stationary, while the temporary force varies considerably throughout the year. The field headquarters are located in San Antonio, Tex.

Description and Damage

The pink bollworm was first discovered in the United States in a cotton field near Hearne, Tex., on September 10, 1917.

The adult resembles somewhat the common clothes moth of this country. It is of a dark brown color, the extended wings measuring from three-fifths to four-fifths of an inch from tip to tip. The pupa is about two-fifths of an inch in length and of a reddish brown color. The full-grown larva is about half an inch in length, cylindrical, white, with the dorsal side strongly colored with pink.

The pink bollworm damages cotton by destroying a certain number of bolls or portions of bolls, in which case the lint produced is short and kinky. This causes a corresponding reduction in the seed, and those produced are of light weight and poor grade; also, the percentage of germination is considerably lowered. It has been found that the oil content is lowered about 20 per cent, and the oil secured is of dark color and of comparatively low value.

The Thurberia weevil is closely related to the common boll weevil and damages cotton in very much the same manner. At present it is known to exist only in certain areas in southern Arizona. Scouting to determine the spread of the weevil is assumed by the Bureau of Entomology in connection with its research work on the insect, the quarantine being in full charge of the Plant Quarantine and Control Administration.

Locating Infestations

One method of locating an infestation is by sending inspectors into the fields to make an examination of the cotton. This examination may be of blooms, squares, or bolls, depending upon the stage of growth. Usually, infestations can be found easier after the cotton starts opening, since bolls attacked by this insect either fail to open or open only partially.

Another method, developed this season, is the examination of trash from gins with a mechanical device known as a gin trash machine. In ginning, the seed cotton passes through a "first cleaner", the function of which is to remove particles of dirt and trash. One bale may contain from a peck to several bushels of such material. Many insects are discharged with this trash. The gin trash machine has been designed to take this large volume of trash and reduce it to a small amount, pink bollworms and insects of the same size being discharged with the small amount of trash. One gin trash machine can handle trash from a number of gins, thus making possible the examination of material from a much greater area than is possible by field inspection.

Infested Area

Pink bollworm infestations have been found in this year's crop in the following counties: Arizona - Graham, Pinal, Maricopa, and Pima; New Mexico - Chaves, Eddy, Otero, Dona Ana, and Luna; Texas - Presidio, Brewster, Reeves, Ward, Hudspeth, El Paso, Andrews, Ector, and Midland.

The infestations in Andrews and Ector Counties were found by field inspections, the others having been found by the use of the gin trash machines. Specimens were also found, with the machine, in trash from all seven gins in the Juarez Valley in Mexico, which is just across the Rio Grande opposite the El Paso Valley.

The infestation in the Salt River Valley of Arizona is now known to exist in the following general localities: South and southwest of Tempe, south and east of Chandler, the vicinity of Coolidge, the Lehi section, near Laveen, near Glendale, and a few miles west of Avondale, which is about 25 miles west of Phoenix. These infestations are so light that it is only with great difficulty that specimens can be found by field inspection.

Changes in Quarantine Regulations

Changes have recently been made in the quarantine regulations. The most important was the releasing of several counties in west Texas from the quarantined area. The territory affected includes all of Martin and Glasscock Counties, and those parts of Dawson, Howard, and Borden Counties which have previously been under restrictions, and a small section of Midland County. The released area contained approximately 337,500 acres of cotton. No pink bollworm infestation has been found in any part of this released area since the crop season of 1927.

Another change was the replacing of the fumigation requirement for the movement of lint out of the quarantined area from Chaves, Eddy, and Otero Counties, New Mexico. The change was due to the discovery of living pink bollworms in the present crop in the above counties. This requirement had been lifted June 1, 1930, because no infestation had been found in or within five miles of these counties during that or the two preceding crop seasons.

The regulated area now embraces the following counties: Arizona - Cochise, Greenlee, Graham, Pinal, and Maricopa; New Mexico - Chaves, Eddy, Otero, Dona Ana, Luna, Grant, and Hidalgo; Texas - Terrell, Presidio, Brewster, Pecos, Jeff Davis, Reeves, Ward, Loving, Culberson, Hudspeth, El Paso, Winkler, Ector, Andrews, Crane, Upton, and Midland, except the northeastern corner. Pima County, Arizona, is under regulations similar to those enforced against the pink bollworm, on account of the Thurberia weevil.

Regulatory Work

The main phases of our regulatory work consist of supervision of gins, oil mills, compresses, and fumigation plants. There are 144 gins, 22 oil mills, and 10 compresses and fumigation plants in the regulated area. There were 35 gins and 3 oil mills in that part of Texas recently released. The gins are all equipped with seed sterilizers, through which the seed passes as a continuous process of ginning, and must be heated to a temperature above 145°F. Practically all oil mills are now equipped with special rollers through which the linters are passed, thus eliminating the necessity of compression and fumigation; otherwise they must be compressed and fumigated. All lint produced in the regulated area requires compression and fumigation before being shipped out of such area.

Road Stations

We now have three road traffic inspection stations in operation, located at Alpine, Ft. Davis, and Valentine, all in Texas. These stations are for the purpose of preventing material likely to carry the pink bollworm from leaving the heavily infested Big Bend area. On November 17, A. P. Prude, at the Ft. Davis station, took a pillow made of seed cotton from a truck en route from Presidio to Barstow. About one-fourth pound of seed cotton was also found in cracks in the bed of the truck. This material contained 16 living specimens of the pink bollworm. On December 12, D. H. Hunter, at the Valentine station, found one-half pound of seed cotton in a truck en route from Presidio. This cotton was taken from various parts of the truck and contained 1 living pink bollworm. In all, four confiscations of infested material have been made this season, from which were taken 23 living and 34 dead specimens of the pink bollworm.

Laboratory

A laboratory has recently been opened in San Antonio for use in connection with the inspection of green bolls, previously collected throughout the Cotton States. Quite a bit of machinery has been installed, and the operations at this time consist in testing and perfecting the different processes to be used. Present plans call for the laboratory to be in full operation about the first of the year, at which time we will give more details of this phase of the work.

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